

If $f(x) = 3x - 1$, $g(x) = x - 5$, and $h(x) = x^2 - 3$, find the following

1. $(f \cdot g)(x)$ 2. $(g - f)(x)$ 3. $(g \circ h)(x)$ 4. $(f \circ g)(1)$

5. On the same set of axes graph the one-to one function, $f(x) = 2x - 2$ and its inverse. Write the equation of f^{-1} .

Use the properties of logarithms to write each expression as a single logarithm.

6. $\log_2 6 + \log_2 5 - \log_2 3$ 7. $4\log x + \log(x + 7) - \log x^2$

8. Express $\log_5 \left(\frac{x^3 (x + 5)^2}{\sqrt[3]{x - 1}} \right)$ as a sum and/or difference of multiples of logarithms.

9. Use the change of base property to approximate $\log_5 8$ to four decimal places.

10. Solve for x : $\log_3 \frac{1}{27} = x$.

11. Solve $2^{(3x-1)} = 6$ for x . Give an exact solution and also approximate the solution to four decimal places.

Solve each logarithmic equation for x . Give an exact solution.

12. $\log_4 x = 3$ 13. $\ln e^3 = x$ 14. $\log_3 (4x + 1) = 2$ 15. $\log_7 4 + \log_7 x = 1$

16. $\log(x + 1) - \log(x - 2) = 2$ 17. $3^{\log_3 x} = 5$ 18. $\log_x 4 = 2$

19. Solve $\ln(5x - 6) = 3$ accurate to four decimal places.

20. Graph the function: $f(x) = \left(\frac{1}{3}\right)^x$. Label three exact points and list the domain and range.

21. Graph the function $g(x) = \log_2 x$. Label three exact points and list the domain and range.

22. Determine the future value $A = P \left(1 + \frac{r}{n}\right)^{nt}$ of \$8,000 deposited in a certificate of deposit if it earns 6% compounded monthly after 2 years.

23. Write the standard form of the equation of the circle whose radius is 3 and whose center is (2, -1).
24. Sketch a graph of the circle: $(x+3)^2 + (y-2)^2 = 25$. Label the center and 4 exact points which lie on the circle.
25. Sketch a graph of the circle: $x^2 + y^2 = 49$. Label the center and 4 exact points which lie on the circle.

Answers Practice Test Unit Four

Martin-Gay 4th edition

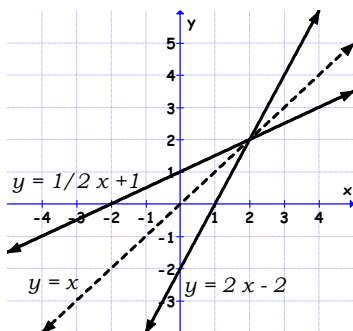
1. $3x^2 - 16x + 5$

2. $-2x - 4$

3. $x^2 - 8$

4. -13

5. $f^{-1}(x) = \frac{1}{2}x + 1$



6. $\log_2 10$

7. $\log x^2(x+7)$

8. $3\log_5 x + 2\log_5(x+5) - \frac{1}{3}\log_5(x-1)$

9. 1.2920

10. $x = -3$

11. $x = \frac{\frac{\log 6}{\log 2} + 1}{3} \approx 1.1950$

12. $x = 64$

13. $x = 3$

14. $x = 2$

15. $x = \frac{7}{4}$

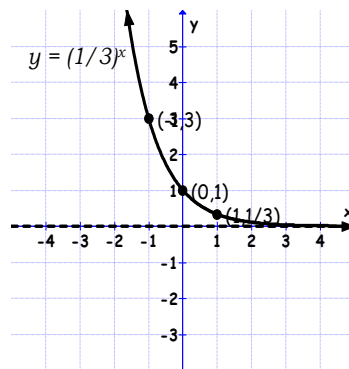
16. $x = \frac{201}{99}$

17. $x = 5$

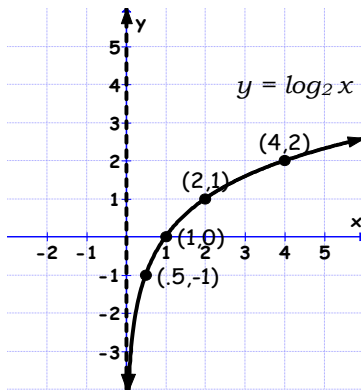
18. $x = 2$

19. $x = 5.2171$

20. Domain: $(-\infty, \infty)$ Range: $(0, \infty)$



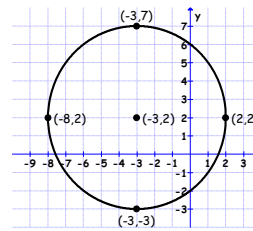
21. Domain: $(0, \infty)$ Range: $(-\infty, \infty)$



22. \$9017.28

23. $(x-2)^2 + (y+1)^2 = 9$

24. Center: $(-3, 2)$ Radius: 5



25. Center: $(0, 0)$ Radius: 7

